SF File Number
20,8

REMEDIATION TECHNOLOGIES INC

23 Old Town Square
Suite 250
Fort Collins, CO 80524
Telephone: (303) 493-3700
Facsimile: (303) 493-2328

June 5, 1992

Mr. Joe DeLong
P.O. Box 164
Somers, Montana 59932

RE: Summary Of 1991 Subsurface Sampling On Your Property In Somers, MT

Dear Mr. DeLong:

This letter is a summary of the portion of subsurface data RETEC collected from soil borings on or near your property during the 1991 investigation of the former BNRR tie plant in Somers, MT. I was present during the investigation and had the opportunity of meeting you at that time, so Lena Blais asked if I would summarize this information for you.

I have enclosed a map which shows the location of the borings on your property and their designation numbers. A data table is also included summarizing soil data and Toxicity Characteristic Leaching Procedure (TCLP) leachate data from several of the soil samples. The field boring logs included summarize the visual observations during drilling.

The PAH concentrations in the soil samples from the area of your property were generally quite low. Maximum concentrations were found at depths of approximately 15 feet below ground surface. Only one boring CB-9 contained total PAH concentrations above 1.0 mg/kg and concentrations overall were quite less. The well logs indicate no stained soils were present in this area.

The TCLP analysis of the soil provides a measure of the potential for a contaminated soil or other waste material to leach contaminants. The leachability of the subsurface PAH is of interest for several reasons. First, the TCLP test provides a measure of the potential for contaminated soil to adversely impact groundwater at the site. Secondly, the TCLP data provides an indication of the flushability of the site contaminants during remedial action. Approximately 10 percent of the soil samples were subjected to the TCLP analysis. Of the sixteen soil samples collected from the borings completed on your property, two samples were subjected to TCLP analysis.

Results of these two samples were mostly below laboratory detection limits for the individual PAH compounds. Only six compounds from the boring CB-9 samples were detected at concentrations generally in the part per billion range. The TCLP data compare relatively well to the groundwater quality data from nearby wells, thus this data appears to be indicative of potential groundwater quality in the area.

I hope this is the information you were looking for. Please contact me at (303)493-3700 if you have any questions on the information provided.

Sincerely,
REMEDIATION TECHNOLOGIES, INC.

Kit F. Nielsen, P.E.
Project Engineer

cc: Lena Blais, RETEC
Jim Harris, EPA

Enclosures

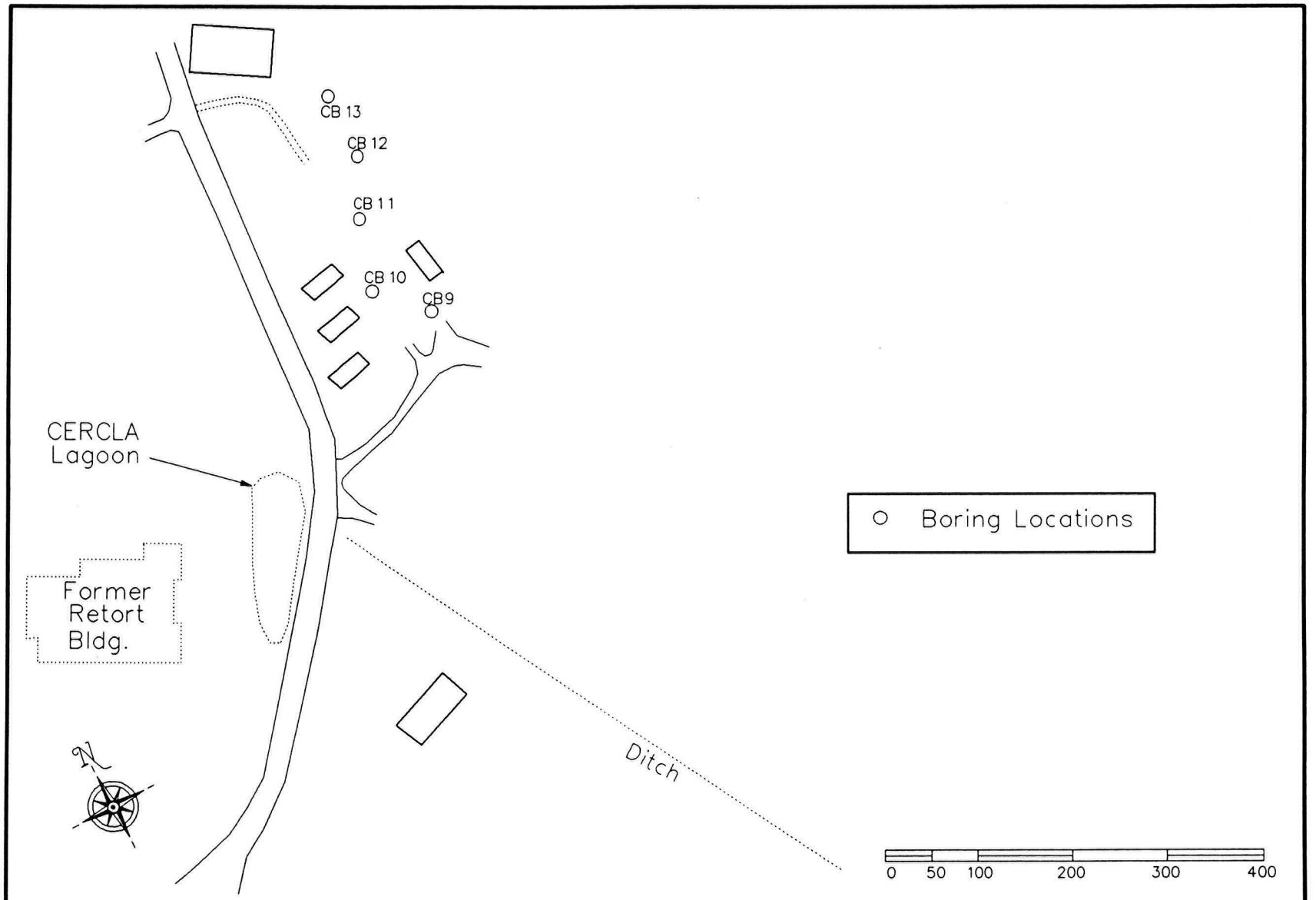

FIGURE 1

CERCLA LAGOON AND DOWNGRADIENT AREA - BORING LOCATIONS

TABLE 1
SOMERS DOWNGRADIENT
CERCLA LAGOON BORINGS

Boring No:	CB-9	CB-9	CB-9	CB-10	CB-10	CB-10	CB-11	CB-11
Sample Depth(ft):	10	15	20	15	20	25	15	20
Sample Date:	5/16/91	5/16/91	5/16/91	5/16/91	5/16/91	5/16/91	5/17/91	5/17/91
SOIL CONCENTRATION(mg/kg)								
Naphthalene	0.88	0.74	0.63	0.096	0.35	1	< 0.015	0.028
Acenaphthylene	< 0.03	< 0.03	0.035	< 0.03	< 0.03	< 0.035	< 0.03	< 0.03
Acenaphthene	0.26	0.064	0.065	0.02	< 0.02	< 0.035	< 0.02	< 0.02
Fluorene	0.16	0.012	0.003	< 0.003	< 0.003	0.0036	< 0.003	< 0.003
Phenanthrene	0.19 J	0.0057 J	0.0045 J	0.0059 J	0.0044 J	0.011 J	0.0051 J	0.0033 J
Anthracene	0.016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0011 J	< 0.001
Fluoranthene	0.048	0.012	0.015	0.014	0.018	0.022	0.095	0.01 J
Pyrene	0.0017 J	0.002 J	0.0016 J	0.0011	0.0016 J	0.0019 J	0.0017 J	0.0011 J
Benzo(a)anthracene	< 0.002	< 0.002	0.002 J	< 0.002	< 0.002	< 0.002	< 0.003	< 0.002
Chrysene	0.0017 J	0.0063 J	0.0047 J	< 0.002	0.007 J	0.0079 J	< 0.002	0.0032 J
Benzo(b)fluoranthene	0.0028 J	0.32 J	0.03 J	0.0055 J	0.034 J	0.0047 J	0.0031 J	0.019 J
Benzo(k)fluoranthene	0.00079 J	0.0017 J	< 0.001	0.0011 J	< 0.002	< 0.002	< 0.001	0.0012 J
Benzo(a)pyrene	< 0.001	0.0014 J	< 0.001	0.0008 J	< 0.002	< 0.002	< 0.001	< 0.001
Dibenzo(a,h)anthracene	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.001	< 0.001
Benzo(g,h,i)perylene	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
Indeno(123-cd)pyrene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
TCLP CONCENTRATION(mg/l)								
Naphthalene	0.0023							
Acenaphthylene	< 0.0005							
Acenaphthene	0.0042							
Fluorene	0.0017							
Phenanthrene	0.0013							
Anthracene	0.00007 J							
Fluoranthene	0.00039							
Pyrene	< 0.0001							
Benzo(a)anthracene	< 0.0001							
Chrysene	< 0.0001							
Benzo(b)fluoranthene	< 0.0001							
Benzo(k)fluoranthene	< 0.0001							
Benzo(a)pyrene	< 0.0001							
Dibenzo(a,h)anthracene	< 0.0001							
Benzo(g,h,i)perylene	< 0.0005							
Indeno(123-cd)pyrene	< 0.0001							

J-Estimated Concentrations

TABLE 1 continued
SOMERS DOWNGRADIENT
CERCLA LAGOON BORINGS

Boring No:	CB-11	CB-12	CB-12	CB-12	CB-12	CB-13	CB-13	CB-13
Sample Depth(ft):	25	15	25	30	30-Dup	15	32	30
Sample Date:	5/17/91	5/17/91	5/17/91	5/17/91	5/17/91	5/21/91	5/21/91	5/21/91
SOIL CONCENTRATION(mg/kg)								
Naphthalene	0.051	0.013 J	0.018	0.014 J	0.016	< 0.02	0.036	0.05
Acenaphthylene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Fluorene	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.0089	< 0.003
Phenanthrene	0.0047 J	0.0034 J	0.0051 J	0.0043 J	0.0049 J	< 0.01	0.048 J	0.008 J
Anthracene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0027	< 0.001
Fluoranthene	0.014	0.0088	0.016 J	0.013	0.017	0.014	0.052	0.021
Pyrene	< 0.001	< 0.001	0.0019 J	0.0015 J	0.0017 J	< 0.005	0.017 J	0.0036 J
Benzo(a)anthracene	< 0.002	< 0.002	0.0025 J	< 0.002	< 0.002	< 0.003	0.0045 J	< 0.003
Chrysene	0.0034 J	0.003 J	0.0081 J	0.0035 J	0.0043 J	< 0.003	0.01 J	< 0.009
Benzo(b)fluoranthene	0.03 J	0.0055 J	0.019 J	0.026 J	0.05 J	0.018	0.054 J	0.043 J
Benzo(k)fluoranthene	0.0018 J	< 0.001	< 0.001	0.0015 J	0.0019 J	< 0.001	0.0024 J	0.0012 J
Benzo(a)pyrene	0.0017 J	< 0.001	< 0.001	0.0014 J	0.0027 J	< 0.003	0.0038 J	0.0021 J
Dibenzo(a,h)anthracene	< 0.001	< 0.001	< 0.001	< 0.003	< 0.003	< 0.005	< 0.005	< 0.005
Benzo(g,h,i)perylene	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.015	< 0.015	< 0.015
Indeno(123-cd)pyrene	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
TCLP CONCENTRATION(mg/l)								
Naphthalene					< 0.0004			
Acenaphthylene					< 0.0005			
Acenaphthene					< 0.001			
Fluorene					< 0.0001			
Phenanthrene					< 0.0001			
Anthracene					< 0.00005			
Fluoranthene					< 0.0001			
Pyrene					< 0.0001			
Benzo(a)anthracene					< 0.00005			
Chrysene					< 0.00005			
Benzo(b)fluoranthene					< 0.0001			
Benzo(k)fluoranthene					< 0.00005			
Benzo(a)pyrene					< 0.00005			
Dibenzo(a,h)anthracene					< 0.0001			
Benzo(g,h,i)perylene					< 0.0005			
Indeno(123-cd)pyrene					< 0.0001			

J-Estimated Concentrations

REMEDIATION TECHNOLOGIES, INC.

BORING LOG

BORING CB9
SHEET 1 OF 1

PROJECT	BN Somers	CONTRACTOR ESD, Inc.	MONUMENT
PROJECT #	E86-011-940	DRILLER Jay	RISER
LOCATION	CERCLA Downgradient	RIG TYPE Mobile	SCREEN
TOTAL DEPTH	30'	METHOD HSA	FILTER PACK
DATE	5/16/91	CASING ID	SEAL
START 1130	FINISH 1200	BORING ID 7.5"	GROUT Bentonite chips to surface
LOGGED BY	SSB	SAMPLE TYPE 5' Split Spoon	GROUND ELEV

SAMPLE TYPE AND NUMBER	TIME	DEPTH RANGE	USCS	DEPTH FEET	SAMPLE DESCRIPTION CLASSIFICATION SCHEME USCS
		0-1		2	gravels (driveway) top soil dusky brown
					v. fine sand and silt, moderate yellow/brown, no odor
				4	
CB9-5	1130	2-7	SC		
				6	silt, some v. fine sand w/ some mottling in dark yellow/orange, moderate yellow/brown
			ML	8	
					brown silt and v. fine sand layers w/ dark yellow/brown mottling alternating approximately 4", moderate yellow/brown, no odor
CB9-10	1135	7-12	ML-SC	10	
					clayey silt, varing amounts of clay, occasional sand layer up to 2", some dark yellow/orange staining, olive grey, odor
			ML	12	
				14	
CB9-15	1140	12-17	ML-SC		clayey silt, varing amounts of clay, olive grey, sand layer at 14' ~6" v. fine sand, sand layer at 15.5' ~6" v. fine sand, odor
				16	
				18	
CB9-20	1150	17-22	ML		clayey silt, varing amounts of silt, olive grey, occasional organic matter layer and occasional v. fine sandy silt layer, no odor
				20	
				22	
CB9-25	1155	22-27	ML	24	clayey silt, varing amounts of clay, olive grey, no odor
				26	
CB9 (29-30 perm)	1200			28	
CB9-30	1205	27-30	ML	30	clayey silt, varing amounts of clay, olive grey, no odor
					TD - 30'

GROUNDWATER DEPTH (FT) 7'

REMARKS:

REMEDIATION TECHNOLOGIES, INC.

BORING LOG

BORING CB10
SHEET 1 OF 1

PROJECT BN Somers	CONTRACTOR ESD, Inc	MONUMENT
PROJECT # E86-011-940	DRILLER Jay	RISER
LOCATION CERCLA Downgradient	RIG TYPE Mobile	SCREEN
TOTAL DEPTH 30'	METHOD HSA	FILTER PACK
DATE 5/16/91	CASING ID	SEAL
START 1425 FINISH 1530	BORING ID 7.5"	GROUT Bentonite chips to surface
LOGGED BY SSB	SAMPLE TYPE 5' Split Spoon	GROUND ELEV

SAMPLE TYPE AND NUMBER	TIME	DEPTH RANGE	USCS	DEPTH FEET	SAMPLE DESCRIPTION CLASSIFICATION SCHEME USCS
		0-2		2	top soil dusky brown, no odor
				4	silt and v. fine sand, moderate yellow/brown
CB10-5	1435	2-7	ML-SC	6	silt, w/ dark yellow/orange mottling, moderate yellow/brown, occasional sand layer, no odor
			ML	8	silt and v. fine sand (alternating), w/ dark yellow/orange mottling layers ~4" each
CB10-10	1450	7-12	ML-SC	10	silt and v. fine sand, olive grey, no odor
			ML-SC	12	
				14	
CB10-15	1510	12-17	SC-ML	16	v. fine sand w/ occasional silt layer up to 4", olive grey, odor
				18	
CB10-20 (22.5-23.5 perm)	1520	17-22	SC-ML	20	v. fine sand w/ occasional silt layer up to 4", olive grey, odor
					clayey silt, varing amounts of clay, olive grey, odor
			ML	22	v. find sand, olive grey
CB10-25	1525	22-27	SC	24	clayey silt, varing amounts of clay and occasional v. fine sand layer up to 4", olive grey, no odor
				26	
			ML	28	
CB10-30	1530	27-30	ML	30	clayey silt, varing amounts of clay, occasional v. fine sand layer or sandy silt layer up to 1", olive grey
					TD - 30'

GROUNDWATER DEPTH (FT) 7'

REMARKS:

REMEDIATION TECHNOLOGIES, INC.

BORING LOG

BORING CB11
SHEET 1 OF 1

PROJECT BN Somers		CONTRACTOR ESD, Inc.	MONUMENT
PROJECT # E86-011-940		DRILLER Jay	RISER
LOCATION CERCLA Downgradient		RIG TYPE Mobile	SCREEN
TOTAL DEPTH 27'		METHOD HSA	FILTER PACK
DATE 5/17/91		CASING ID	SEAL
START 0955	FINISH 1105	BORING ID 7.5"	GROUT Bentonite chips to surface
LOGGED BY SSB		SAMPLE TYPE 5' Split Spoon	GROUND ELEV.

SAMPLE TYPE AND NUMBER	TIME	DEPTH RANGE	USCS	DEPTH FEET	SAMPLE DESCRIPTION CLASSIFICATION SCHEME USCS
		1-2	ML-SC	2	top soil dusky brown, no odor silt and v. fine sand, moderate yellow/brown, no odor
				4	silt and v. fine sand, moderate yellow/brown, no odor
CB11-5	1015	2-7	ML-SC	6	silt and v. fine sand, moderate yellow/brown, w/ dark yellow/orange mottling, no odor
				8	
CB11-10	1020	7-12	ML-SC	10	alternating layers of v. fine sandy silt and v. fine sand ~ 4"-6" each, moderate yellow/brown, sli. odor
			SC	12	v. fine sand, dark yellow/orange, no odor
CB11-15	1030	12-17	SC-ML	14	v. fine sand w/ occasional clayey silt layer up to 4", grading from dark yellow/orange to olive grey, no odor
				16	
CB11-20	1050	17-22	SC	18	v. fine sand, olive grey, occasional shell and organic matter, sli. odor
			SC-ML	20	
CB11-25	1100			22	v. fine sand and clayey silt, olive grey layers
		22-27		24	
			SC-ML	26	v. fine sand w/ occasional v. thin layers of organic matter and clayey silt, ~1/4", olive grey
CB11-27	1105			28	TD - 27'

GROUNDWATER DEPTH (FT)

REMARKS:

REMEDIATION TECHNOLOGIES, INC.

BORING LOG

BORING CB12
SHEET 1 OF 1

PROJECT BN Somers	CONTRACTOR ESD, Inc	MONUMENT
PROJECT # E86-011-940	DRILLER Jay	RISER
LOCATION CERCLA Downgradient	RIG TYPE Mobile	SCREEN
TOTAL DEPTH 32'	METHOD HSA	FILTER PACK
DATE 5/17/91	CASING ID	SEAL
START 1410 FINISH 1515	BORING ID 7.5"	GROUT Bentonite chips to surface
LOGGED BY SSB	SAMPLE TYPE 5' Split Spoon	GROUND ELEV.

SAMPLE TYPE AND NUMBER	TIME	DEPTH RANGE	USCS	DEPTH FEET	SAMPLE DESCRIPTION CLASSIFICATION SCHEME USCS
			ML	2	top soil, dark brown, no odor silt, moderate yellow/brown
CB12-5		0-5	ML		silt, v fine sand, moderate yellow/brown, no odor
			SC	4	v. fine to med sand, moderate yellow/brown, w/ mottling, no odor
			ML	6	silt, moderate yellow/brown, dark mottling, moist, no odor
CB12-10		5-10		8	
			SC-ML	10	v. fine sand and silt, moderate yellow/brown layers, no odor
				12	
CB12-15		10-15	ML		silt, clayey, moderate yellow/brown, no odor
				14	
			SC	16	v fine sand w/ occasional clayey silt lens up to 4", organic matter, no odor
CB12-20		15-20	SC	18	- as above
				20	
CB12-25		20-25		22	
			SC-ML	24	v fine sand and clayey silt layers, olive grey, sli odor
				26	
CB12-30		25-30	SC	28	fine sand, sli silty, olive grey
				30	
			ML	32	silt, v sandy, olive grey, moderate odor like magic marker
					TD - 32'

GROUNDWATER DEPTH (FT) 7'

REMARKS:

REMEDIATION TECHNOLOGIES, INC.

BORING LOG

BORING CB13
SHEET 1 OF 1

PROJECT BN Somers	CONTRACTOR ESD, Inc	MONUMENT
PROJECT # E86-011-940	DRILLER Jay, Mike	RISER
LOCATION CERCLA Downgradient	RIG TYPE Mobile	SCREEN
TOTAL DEPTH 32'	METHOD HSA	FILTER PACK
DATE 5/21/91	CASING ID	SEAL
START 1120 FINISH 1515	BORING ID 7.5"	GROUT Bentonite chips to surface
LOGGED BY SEN	SAMPLE TYPE 5' Split Spoon	GROUND ELEV.

SAMPLE TYPE AND NUMBER	TIME	DEPTH RANGE	USCS	DEPTH FEET	SAMPLE DESCRIPTION CLASSIFICATION SCHEME USCS
			ML	2	organic rich top soil, vegetative matter changes abruptly to tan-brown sli. clayey silt w/ roots throughout, damp, no odor
CB13-5	1135	0-5		4	silt changing to med-coarse grained sand, tan-brown
			ML	6	silt w/ v. minor clay, tan-brown, orange FeOx stained throughout, damp-moist, sli. compact, no odor
CB13-10	1140	5-10		8	
			ML	10	silt w/ minor clay, tan-brown to grey, occasional fine-grained sand (7'-8') lenses approx. 1" thick, wet to water saturated, sli. compact, no odor
				12	
CB13-15	1150	10-15	SC-ML	14	silty fine-grained sand, tan and brown, changing to dark grey color @ ~15', thin (0.5") lenses of peat material @ 15'-17'
				16	
CB13-20	1155	15-20		18	
			SC	20	silty fine-grained sand (well graded), grey, water saturated, minor twigs, etc., magic marker odor present @ approx. 20'
CB13-25	1315	20-25		22	
				24	
			ML	26	silt w/ minor clay and peat lenses (especially @ 24'), dark grey, water saturated, sli. compact, magic marker odor @ 25.5'-27'
CB13-30	1330	25-30		28	
			SC	30	fine-grained sand w/ silt (well graded), dark grey, water saturated, faint to moderate magic marker odor, becoming strong below 30'
				32	TD = 32'

GROUNDWATER DEPTH (FT) 8'

REMARKS: